

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims**

1. (Currently Amended) A commutator motor, comprising:

an iron core having a center and a plurality of open-ended teeth extending radially from the center to form a plurality of slots between the open-ended teeth, each slot configured for coil winding;

a rotation shaft inserted in a center of said iron core;

a pair of first and second commutators mounted on said rotation shaft at opposite ends of said iron core;

a first coil wire connected to the first commutator, and wound on bottoms of the slots of said iron core to provide an inner coil to form a first winding, said first winding comprising a first subwinding around a first set of opposing commutator teeth and a second subwinding around a second set of opposing commutator teeth, the second set of opposing commutator teeth being adjacent to the first set of opposing commutator teeth;

a second coil wire connected to the second commutator, and wound on said inner coil in the slots of said iron core to provide an outer coil at a side of the opened outer radial end of the slot;

a first terminal that can be connected to a first power source to supply electric power of said first power source to said first coil wire through said first commutator; and

a second terminal that can be connected to a second power source to supply electric power of said second power source to said second coil wire through said second commutator;

wherein a diameter of said second coil wire is smaller than that of said first coil wire.

2. (Previously Presented) The commutator motor as set forth in claim 1, wherein:

a winding start position of said second coil wire of said outer coil is displaced at 90 degrees about said iron core with respect to a winding end position of said first coil wire of said inner coil.

3. (Previously Presented) The commutator motor as set forth in claim 1, wherein:

said first terminal is adapted for use in a DC power source for supplying a large current that works as said first power source,

said second terminal is adapted for use in an AC power source for supplying a small current that works as said second power source, and

said inner and outer coils are formed such that a motor output provided by use of said first power source is substantially equivalent to the motor output provided by use of said second power source.

4. (Currently Amended) A commutator motor, comprising:

an iron core having a center and a plurality of open-ended teeth extending radially from the center to form a plurality of slots between the open-ended teeth, each slot configured for coil winding;

a rotation shaft inserted in the center of said iron core

a pair of first and second commutators mounted on said rotation shaft at opposite ends of said iron core;

a first coil wire connected to the first commutator, and wound on bottoms of the slots of said iron core to provide an inner coil to form a first winding, said first winding comprising a first subwinding around a first set of opposing commutator teeth and a second

subwinding around a second set of opposing commutator teeth, the second set of opposing commutator teeth being adjacent to the first set of opposing commutator teeth;

a second coil wire connected to the second commutator, and wound on said inner coil in the slots of said iron core to provide an outer coil;

a first terminal that can be connected to a first power source to supply electric power of said first power source to said first coil wire through said first commutator;

a second terminal that can be connected to a second power source to supply electric power of said second power source to said second coil wire through said second commutator;  
and

means for cooling said second coil wire, which is disposed at the periphery of said outer coil;

wherein a diameter of said second coil wire is smaller than that of said first coil wire.